DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]In the time of the real time data communication [this invention] in LAN (Local Area Network), It is related with the terminal identification number grant method and server apparatus containing the method of identifying a connection mating terminal, the method of performing registration of a terminal automatically, and the device for realizing this method.

[0002]

[Description of the Prior Art]Since LAN by Ethernet (registered trademark) etc. was a network which performs communication by packet data, originally it was a network unsuitable for real time data communications, such as a sound. However, the application of the kind of the Internet telephone which exchanges a voice data packet in real time within LAN has begun to appear in recent years.

[0003]When building LAN by Ethernet etc., it is common to build a network with a TCP/IP protocol. At this time, the terminal connected to the network is usually identified using a terminal identifier called an IP address.

[0004]An IP address is expressed with four triple digits (xxx(es) are 0-255) divided by "." called xxx.xxx.xxx.xxx when expressed with a decimal number. When the head of the triple digits xxx is "0", the "0" concerned may be omitted.

[0005]Drawing 1 shows the example which gave the IP address. For example, "129.60.10.10" is given as an IP address to the terminal A. In order to specify a connection partner by the above-mentioned Internet telephone, it is a general method to specify the IP address of a direct mating terminal, or to specify a partner's e-mail address at the time of call origination. Drawing 2 shows the example of an e-mail address.

[0006]

[Problem(s) to be Solved by the Invention]However, when an IP address was used for connection partner point specification, a maximum of 12 digits of an IP address with thin familiarity to a common user needed to be memorized, this needed to be inputted, and there was a problem of being hard to use in man-machine interface.

[0007]Although the IP address was a systematically important number and it was a number not to release to the exterior where networks differ, in using an IP address for connection partner point specification, there was a problem that

there was the necessity of releasing this outside.

[0008]When connection partner point specification is made into an e-mail address, Usually, there was a problem that a terminal was restricted to a personal computer and could not input that it is necessary to input the address by the quite long alphabet from a simple device like telephone or FAX since it is an input, and a keyboard is required.

[0009]In order to solve this, an original telephone number terminal identification number (LAN telephone number) different from an IP address is given to the terminal in LAN, and it is thought effective to give the correspondence function of this LAN telephone number and an IP address to the LAN telephone number server in LAN.

[0010]Drawing 3 shows the example of composition of the system containing a LAN telephone number server. The numerals 5 in a figure express a client terminal, 6 expresses a LAN telephone number server, and 7 expresses a subordinate's client terminal management number information (terminal control table). By using a LAN telephone number, it becomes unnecessary for the user to remember only the telephone number number (LAN telephone number) which is easy to memorize, and to keep an IP address in mind, and his facility of an

Internet telephone improves. It becomes possible, since an input is only a number to also incorporate terminals for common telephone networks, such as telephone and FAX, into an Internet telephone system, It also becomes possible to use the terminal connection equipment (TA) which has IF which connects the terminal for analog telephone networks, such as telephone/FAX, and has a function which changes the signal of this analog terminal into the packet signal for data communications, and transmits to a network as a client terminal of an Internet telephone.

[0011]Drawing 4 shows the example of composition for which terminal connection equipment (TA) is used. As for the numerals 1 in a figure, LAN/Internet, and 2 express the general-purpose personal computer which terminal connection equipment and 3 have an analog telephone set, and 4 has analog FAX, and has Internet telephone software five.

[0012]However, there was a problem in maintenance nature -- there is the necessity of changing setting out by the side of a LAN telephone number server whenever a system administrator needs to perform registering operation manually to a LAN telephone number server and the terminal side changes a device and an IP address in registration of this LAN telephone number.

[0013]In order to correspond to shortage of an IP address in recent years, a terminal requires an IP address of a server at the time of a system startup, and its system compatible with the dynamic IP address set as the IP address to which the IP address of the self-terminal was given from the server is also increasing. Here, the method of dynamic IP address acquisition is explained.

[0014]The structure of dynamic IP address acquisition is shown in drawing 5, and the example of a dynamic IP address acquisition sequence is shown in drawing 6. Suppose that it is shown in drawing 5 as a network. Here, although a dynamic IP address client terminal requires an IP address of a power up from an IP address grant server, as for the dynamic IP address client terminal, the IP address is not set up at this time. Then, this IP address request packet is transmitted by broadcasting. Since it is broadcast transmission, the IP address of the dynamic IP address client terminal in which this packet is a transmitting agency is transmitted to all the terminals (server ****) in LAN with un-setting up.

[0015]As shown in drawing 5, two or more IP address grant servers may be in LAN, but. If the IP address request packet from a dynamic IP address client terminal is received, each IP address grant server, An intact IP address is temporarily pressed down among the IP addresses which the self-server is

pressing down, and it transmits into LAN by broadcasting too by making this into a temporary IP address. Since broadcast transmission also of the packet of this temporary IP address was carried out, it will also reach the dynamic IP address client terminal in which an IP address has not been set up yet. However, in order that all the IP address grant servers in LAN may transmit the packet of this temporary IP address, the client terminal of a requiring agency will receive two or more temporary IP addresses. Then, the temporary IP address received first is used for a client terminal, and it sends notice packets to the IP address grant server of the transmitting origin of this. The temporary IP address from the other server is disregarded. The server which received the notice of setting out from a client terminal registers formally the IP address pressed down temporarily as under use. The server as which a temporary IP address was not adopted judges the notice of fixed time setting out to be that as which a temporary IP address was not adopted when waiting and this did not come, opens wide the IP address pressed down temporarily, and processes it in the usable state next time.

[0016]Thus, the client terminal corresponding to a dynamic IP address will have an IP address different each time. However, since an IP address which is different in a certain LAN telephone number may have been registered when the

LAN telephone number server has managed the LAN telephone number and the IP address fixed, there was a problem that the same user could not use the same LAN telephone number fixed.

[0017]An object of this invention is to enable it for the terminal in a network to register an IP address automatically at the time of starting, and to erase registration automatically to a LAN telephone number server, at the time of a shutdown, in order to solve the above-mentioned problem. It aims at making it possible to give the always same LAN telephone number to the user concerned, even if it is a case where the client terminal supports what a dynamic IP address is given.

[0018]

[Means for Solving the Problem]In this invention, to a terminal (client terminal) in a network, "a numerical designation child (terminal identification number)" like a telephone number different from an IP address shall be provided, and a LAN telephone number server for managing this shall be in a network. In a network, since it is thought that two or more LAN telephone number servers exist, "a numerical designation child (server management number)" who identifies the LAN telephone number server itself is provided. Said drawing 3 shows this

situation. Here, let a "server management number + terminal management number" be a LAN telephone number.

[0019]LAN telephone number server 6 has a means to describe an IP address of a terminal management number and a terminal corresponding to this, and has a means to return an IP address of an applicable terminal, to an inquiry by a terminal management number. As a means to describe an IP address of this terminal management number and a terminal corresponding to this, a terminal control table as shown in drawing 7 can be taken into consideration.

[0020]LAN telephone number server 6 has a means to describe a server management number and an IP address of a LAN telephone number server corresponding to this, and has a means to return a server management number of a LAN telephone number server which corresponds to server ********** to ********. As a means to describe this server management number and an IP address of a server terminal corresponding to this, a server management table as shown in drawing 8 can be taken into consideration.

[0021]A means by which LAN telephone number server 6 receives a registry request from the client terminal 5 to the terminal control table 7, A means to register an IP address of this client terminal 5 into the terminal control table 7

after this registry request reception, A means to notify a terminal management number matched with the registered IP address concerned to this client terminal after terminal control table registration, A means to receive a registration cancellation demand from [from this client terminal 5] the terminal control table 7, A means to erase an IP address of this client terminal 5 from the terminal control table 7 after this registration cancellation demand reception, A means to notify registration cancellation to this client terminal 5 after registration cancellation, A terminal management number can have an ID management table which manages a means or a user ID number which shows correspondence with a MAC Address and a terminal management number in a confirmation number management table or a terminal control table showing that it is immobilization.

[0022]As a LAN telephone number server, a common personal computer and a workstation with network IF are available. The client terminal 5 of a side to which an Internet telephone is made, A means to input a LAN telephone number, and a means to memorize an IP address of default LAN telephone number server 6 which goes to ask first at the time of call origination, A means to ask an IP address of a mating terminal using a LAN telephone number inputted to default LAN telephone number server 6 before carrying out call origination to a mating

terminal at the time of call origination, It can have a means to receive a notice of an IP address of a mating terminal from LAN telephone number server 6, and a means to perform call origination to a mating terminal of an IP address notified from LAN telephone number server 6.

[0023]A means by which the client terminal 5 sends a terminal control table registry request to LAN telephone number server 6 at the time of a system startup, A means to receive a terminal management number after terminal control table registration from LAN telephone number server 6, A means to send a terminal control table registration cancellation demand to LAN telephone number server 6 at the time of a shutdown, It can have a means to receive a notice after terminal control table registration cancellation from LAN telephone number server 6, and a means by which a terminal management number includes a flag, a MAC Address, or a user ID number which shows immobilization or un-fixing into a registration request packet.

[0024]By this invention, as a client terminal to which an Internet telephone is made, it has network IF and terminal connection equipment (TA) which connects to a network a personal computer with which Internet telephone software was installed, a common analog telephone set, FAX, etc. can be considered.

[0025]A client terminal transmits a LAN telephone number registry request to a LAN telephone number server at a power up or the time of a system startup. When a client terminal supports a dynamic IP address, after acquiring an IP address from an IP address grant server, a LAN telephone number registration request packet is transmitted.

[0026]Drawing 9 shows a LAN telephone number registration sequence. He is trying to acquire an IP address at the time of a system startup. Drawing 10 shows an example of a LAN telephone number registration request packet.

[0027]An IP address of registry request origin confirms whether to already be registered into a terminal control table, and a LAN telephone number server which received a LAN telephone number registration request packet registers with a terminal control table, when unregistered. At this time, it is a registration request packet. [MODE] It is assumed that a fixed LAN telephone number is required when the field is "1", and a LAN telephone number of immobilization in a case of "0" is not demanded. When a fixed LAN telephone number is being demanded [LAN-NUM] When it registers with a LAN telephone number described by the field and a fixed LAN telephone number is not being demanded, a suitable number shall be assigned out of a LAN telephone number which is

intact and is not reserved. A client terminal which uses a fixed LAN telephone number registers fixed LAN telephone number mode and a LAN telephone number to be used into a self-client terminal beforehand. On the other hand, in a server, this LAN telephone number should be reserved and usually forbids use. It becomes possible to assign the always same LAN telephone number to a user who wants to use the always same LAN telephone number by doing in this way. Like a client terminal of a dynamic IP address, it becomes possible to assign the always same LAN telephone number also to a client terminal which an IP address of a self-terminal changes each time. A LAN telephone number server which registered a LAN telephone number transmits notice packets of a processing result to a client terminal of registry request origin. Drawing 11 shows an example of processing result notice packets which a LAN telephone number server transmits.

[0028]It is also possible as a method of carrying out automatic registration to a LAN telephone number to use a MAC Address of a network card. A network card etc. are the numbers given to hardware linked to a network at the time of manufacture, and a MAC Address is a number by a hexadecimal number divided by ":" as shown in "00:A0:24:97:36:F2." Among these, since "00:A0:24" of a

higher rank is a code which shows a manufacturing maker and "97:36:F2" of a low rank is a serial number with each hard manufacturing maker given individually, the same number is not to exist. Drawing 13 shows a terminal control table of a LAN telephone number server, using ******** which a client terminal shows to drawing 12 as a LAN telephone number registration request packet sent to a LAN telephone number server. Although a terminal control table shown in drawing 13 shows correspondence with a LAN telephone number, a MAC Address, and an IP address, the field of an IP address of a terminal which is not [present] on serves as a blank. LAN telephone number server 6 will enter an IP address in an item of the terminal from a MAC Address value in it, if a LAN telephone number registration packet as shown in drawing 12 from the client terminal 5 is received. It becomes possible to assign the always same LAN telephone number to a user who wants to use the always same LAN telephone number by doing in this way. Like a client terminal of a dynamic IP address, it becomes possible to assign the always same LAN telephone number also to a client terminal which an IP address of a self-terminal changes each time.

[0029]It is also possible as a method of carrying out automatic registration to a LAN telephone number to use a user ID number. In an Internet telephone

system with which this invention is used, a user ID number is given by system administrator, when a LAN telephone number can be given. A client terminal seems to show a LAN telephone number registration request packet sent to a LAN telephone number server in drawing 14, and drawing 15 shows an ID management table which described correspondence of a LAN telephone number and a user ID number. A terminal control table of a LAN telephone number server is the same as that of what is shown in above-mentioned drawing 7, and the field of an IP address of a terminal which is not [present] on serves as a blank. If a LAN telephone number registration packet as shown in drawing 14 from the client terminal 5 is received, LAN telephone number server 6 will search an ID management table first, and will check whether the user is registered into a system. When registered, a LAN telephone number of a user of this user ID number is obtained, and an IP address is entered in an item of a terminal of this terminal management number of a terminal control table. It becomes possible to assign the always same LAN telephone number to a user who wants to use the always same LAN telephone number by doing in this way. Like a client terminal of a dynamic IP address, it becomes possible to assign the always same LAN telephone number also to a client terminal which an IP

address of a self-terminal changes each time.

[0030]Next, processing which actually communicates is started. At the time of a communication start, a LAN telephone number which comprises a server management number and a terminal management number is inputted from the client terminal 5. Before carrying out call origination of the client terminal 5 to a mating terminal, it asks an IP address of a mating terminal with an inputted LAN telephone number to LAN telephone number server 6. LAN telephone number server 6 which received an inquiry searches within a self-device, and returns an IP address of an applicable terminal. The client terminal 5 performs call origination to a mating terminal of this received IP address, and starts communication after connection.

[0031]The client terminal 5 transmits a registration cancellation demand of a terminal control table to LAN telephone number server 6 at the time of a shutdown or powering off. LAN telephone number server 6 which received this searches the terminal control table 7, and erases registration of a terminal of an applicable LAN telephone number. Thus, by dynamic IP address grant, if it sets, even if a terminal different from before is a case where an IP address registered in the past is used, registration to the terminal control table 7 will be attained,

and effective use of a limited IP address will be attained.

[0032]Since it registers with a LAN telephone number automatically at the time of client terminal starting, also when a new client terminal is added, it can be managed even if it does not carry out registering operation to a terminal control table of a LAN telephone number server at every time, and it becomes possible to raise maintenance nature.

[0033]

[Embodiment of the Invention]Drawing 16 shows the 1st example of this invention. This example is an example at the time of using a confirmation number management table.

[0034]The client terminal 1 which changes from the personal computer 1601, the microphone 1602, and the loudspeaker 1603 in a network, The client terminal 2 which comprises the terminal connection equipment 1604 and the analog telephone set 1605, the IP address grant server 1606, and LAN telephone number server 1607 are connected. The IP address of the IP address grant server 1606 is "129.60.10.2", and this IP address grant server 1606 has managed an IP address "129.60.10.20" thru/or ten IP addresses of "129.60.10.29." The IP address of LAN telephone number server 1607 is

"129.60.10.1", and in this LAN telephone number server 1607, There are the terminal control table 1608 which described correspondence of a terminal management number and an IP address, and the confirmation number management table 1609 which described the terminal management number reserved beforehand.

[0035]Drawing 17 shows the example of the terminal control table 1608, and drawing 18 shows the example of the confirmation number management table 1609. The client terminal 1 of a graphic display is a dynamic IP address client, and the IP address is not usually set up. The terminal management number of the client terminal 1 is "2001", and this is described by the reservation management table 1609 of LAN telephone number server 1607. The client terminal 2 is set to "129.60.10.12" by IP address immobilization. The LAN telephone number of the client terminal 2 is "2002", and this is also a reserved number and it is described by the confirmation number management table of LAN telephone number server 1607.

[0036]In the above-mentioned network, if the client terminal 1 is turned on, the client terminal 1 will transmit an IP address request packet by broadcast transmission to a network. The IP address grant server which received this

transmits to the client terminal of a requiring agency, usable IP address value, for example, "129.60.10.20." This client terminal 1 receives this IP address "129.60.10.20", and sets the IP address of a self-terminal as this IP address "129.60.10.20." Internet telephone software is started in the client terminal 1. As opposed to LAN telephone number server 1607 of an IP address "129.60.10.1" with which the client terminal 1 was beforehand set as the self-terminal at the time, A LAN telephone number registration request packet is transmitted in the form of terminal management number immobilization and terminal management number = "2001" and IP address= "129.60.10.20." LAN telephone number server 1607 which received this registration request packet searches the confirmation number management table 1609 of a self-terminal first. Since the terminal management number "2001" was registered into this confirmation number management table 1609, next the terminal control table 1608 of a self-terminal is searched, and the IP address "129.60.10.20" of the paragraph of a terminal management number "2001" is registered.

[0037]Next, in the client terminal 2, the terminal management number "2001" is inputted as a connection partner from the telephone 1605. The terminal connection equipment 1604 transmits the IP address inquiry packet of the

terminal of a terminal management number "2001" to LAN telephone number server 1607 of the IP address "129.60.10.1" beforehand set as the self-terminal. LAN telephone number server 1607 which received this inquiry packet searches the terminal control table 1608 of a self-terminal. Since the IP address "129.60.10.20" is registered into the paragraph of the terminal management number "2001" of this terminal control table 1608, LAN telephone number server 1607 returns the IP address "129.60.10.20" to the client terminal 2 of inquiry origin. The client terminal 2 which received this IP address "129.60.10.20" transmits the call origination packet of an Internet telephone to the terminal of this IP address "129.60.10.20." This call origination packet reaches, the terminal 1, i.e., the client terminal, of an IP address "129.60.10.20", and voice communication is henceforth started between the client terminal 2 and the client terminal 1.

[0038]Thus, by registering the IP address value of a dynamic IP address client into a LAN telephone number managing server at the time of a system startup, even if an IP address is a client terminal unfixed each time, the telephone call by an Internet telephone is attained. It becomes possible to assign the always same terminal management number as a certain client terminal by giving a

confirmation number management table to a LAN telephone number server.

[0039]Drawing 19 shows the 2nd example of this invention. This example is an example at the time of using a MAC Address. The client terminal 1 which changes from the personal computer 1901, the microphone 1902, and the loudspeaker 1903 in a network, The client terminal 2 which comprises the terminal connection equipment 1904 and the analog telephone set 1905, the IP address grant server 1906, and LAN telephone number server 1707 are connected. The IP address of the IP address grant server 1906 is "129.60.10.2", and this IP address grant server 1906 has managed an IP address "129.60.10.20" thru/or ten IP addresses of "129.60.10.29." The IP address of LAN telephone number server 1907 is "129.60.10.1", and the terminal control table 1908 which described correspondence with a terminal management number, an IP address, and a MAC Address is in this LAN telephone number server 1907.

[0040]Drawing 20 shows the example of the terminal control table 1708. The client terminal 1 is a dynamic IP address client, and the IP address is not usually set up. The MAC Address of the client terminal 1 is "00:A0:24:97:36:F2", and the terminal management number is registered into the terminal control table 1908

of LAN telephone number server 1907 as "2001." The client terminal 2 is set to "129.60.10.12" by IP address immobilization. The MAC Address of the client terminal 2 is "00:A0:24:97:36:F3", and the terminal management number is registered into the terminal control table 1908 of LAN telephone number server 1907 as "2002."

[0041]In the above-mentioned network, if the client terminal 1 is turned on, the client terminal 1 will transmit an IP address request packet by broadcast transmission to a network. The IP address grant server 1906 which received this transmits the usable IP address value "129.60.10.20" to the client terminal 1 of a requiring agency. This client terminal 1 receives this IP address "129.60.10.20", and sets the IP address of a self-terminal as this IP address "129.60.10.20." Internet telephone software is started in the client terminal 1. As opposed to LAN telephone number server 1907 of an IP address "129.60.10.1" with which the client terminal 1 was beforehand set as the self-terminal at the time, A LAN telephone number registration request packet is transmitted in the form of terminal management number = "2001", MAC Address= "00:A0:24:97:36:F2", and IP address= "129.60.10.20." LAN telephone number server 1907 which received this registration request packet searches the terminal control table

1908 of a self-terminal, and searches the paragraph of terminal management number = "2001." It checks whether the MAC Address of the paragraph is the same as the MAC Address "00:A0:24:97:36:F2" in a registration request packet, and since it was the same, "129.60.10.20" is registered into the portion of an IP address.

[0042]Next, in the client terminal 2, the terminal management number "2001" is inputted as a connection partner from the telephone 1905. The terminal connection equipment 1904 transmits the IP address inquiry packet of the terminal of a terminal management number "2001" to LAN telephone number server 1907 of the IP address "129.60.10.1" beforehand set as the self-terminal. LAN telephone number server 1907 which received this inquiry packet searches the terminal control table 1908 of a self-terminal. Since the IP address "129.60.10.20" is registered into the paragraph of the terminal management number "2001" of this terminal control table 1908, LAN telephone number server 1907 returns the IP address "129.60.10.20" to the client terminal 2 of inquiry origin. The client terminal 2 which received this IP address "129.60.10.20" transmits the call origination packet of an Internet telephone to the terminal of this IP address "129.60.10.20." This call origination packet reaches, the terminal

1, i.e., the client terminal, of an IP address "129.60.10.20", and voice communication is henceforth started between the client terminal 2 and the client terminal 1.

[0043]Thus, by registering the IP address value of a dynamic IP address client into a LAN telephone number managing server at the time of a system startup, even if an IP address is a client terminal unfixed each time, the telephone call by an Internet telephone is attained. It becomes possible to assign the always same terminal management number as a certain client terminal by giving a confirmation number management table to a LAN telephone number server.

[0044]Drawing 21 shows the 3rd example of this invention. This example is an example at the time of using an ID management table. The client terminal 1 which changes from the personal computer 2101, the microphone 2102, and the loudspeaker 2103 in a network, The client terminal 2 which comprises the terminal connection equipment 2104 and the analog telephone set 2105, the IP address grant server 2106, and LAN telephone number server 2107 are connected. The IP address of the IP address grant server 2106 is "129.60.10.2", and this IP address grant server 2106 has managed an IP address "129.60.10.20" thru/or ten IP addresses of "129.60.10.29." The IP address of

LAN telephone number server 2107 is "129.60.10.1", and in this LAN telephone number server 2107, There is ID management table 2109 which described the ID number which shows the terminal control table 2108 which described correspondence of a terminal management number and an IP address, and the user who reserved the terminal management number reserved beforehand and its number. Drawing 22 shows the example of the terminal control table 2108, and drawing 23 shows the example of ID management table 2109. The client terminal 1 is a dynamic IP address client, and the IP address is not usually set up. The terminal management number of the client terminal 1 is "2001", and this is described by ID management table 2109 of LAN telephone number server 2107 with the ID number "U001" of the client terminal 1. The client terminal 2 is set to "129.60.10.12" by IP address immobilization. The LAN telephone number of the client terminal 2 is "2002", and this is also a reserved number and it is described by ID management table 2109 of LAN telephone number server 2107 with the user ID number "U002" of the client terminal 2.

[0045]In the above-mentioned network, if the client terminal 1 is turned on, the client terminal 1 will transmit an IP address request packet by broadcast transmission to a network. The IP address grant server 1906 which received this

transmits to the client terminal 1 of a requiring agency, usable IP address value, for example, "129.60.10.20." This client terminal 1 receives this IP address "129.60.10.20", and sets the IP address of a self-terminal as this IP address "129.60.10.20." Internet telephone software is started in the client terminal 1. As opposed to LAN telephone number server 2107 of an IP address "129.60.10.1" with which the client terminal 1 was beforehand set as the self-terminal at the time, A LAN telephone number registration request packet is transmitted in the form of user ID number = "U001", terminal management number = "2001", and IP address= "129.60.10.20." LAN telephone number server 2107 which received this registration request packet searches ID management table 2109 of a self-terminal first. Since user ID number = "U001" and the terminal management number "2001" were registered into this ID management table 2109, next the terminal control table 2108 of a self-terminal is searched, and "129.60.10.20" is registered into the IP address of the paragraph of a terminal management number "2001."

[0046]Next, in the client terminal 2, the terminal management number "2001" is inputted as a connection partner from the telephone 2105. The terminal connection equipment 1904 transmits the IP address inquiry packet of the

terminal of a terminal management number "2001" to LAN telephone number server 2107 of the IP address "129.60.10.1" beforehand set as the self-terminal. LAN telephone number server 2107 which received this inquiry packet searches the terminal control table 2108 of a self-terminal. Since the IP address "129.60.10.20" is registered into the paragraph of the terminal management number "2001" of this terminal control table 2108, LAN telephone number server 2107 returns the IP address "129.60.10.20" to the client terminal 2 of inquiry origin. The client terminal 2 which received this IP address "129.60.10.20" transmits the call origination packet of an Internet telephone to the terminal of this IP address "129.60.10.20." This call origination packet reaches, the terminal 1, i.e., the client terminal, of an IP address "129.60.10.20", and voice communication is henceforth started between the client terminal 2 and the client terminal 1.

[0047]Thus, by registering the IP address value of a dynamic IP address client into a LAN telephone number managing server at the time of a system startup, even if an IP address is a client terminal unfixed each time, the telephone call by an Internet telephone is attained. It becomes possible to assign the always same terminal management number as a certain client terminal by giving an ID

management table to a LAN telephone number server.

[0048]Although each above 1st thru/or 3rd this example has described the case where Ethernet is used, this invention can be similarly applied, when the dialup connection was carried out from the common telephone network, or when FDDI and ATM are used as a network. It can apply, as well as this example when terminal connection equipment (TA) is a dynamic IP address client.

[0049]In this example, although the terminal identification number of a LAN telephone number and the server identification number used four digits, this digit number can be changed with the number of the terminals connected to a network.

[0050]

[Effect of the Invention]As explained above, according to this invention, if the terminal in a network registers an IP address automatically to a LAN telephone number server at the time of starting, Even if it is a case where it became possible to erase registration automatically at the time of a shutdown, and the client terminal supports the dynamic IP address as a result, it becomes possible to a certain user to give the always same LAN telephone number.

[Translation done.]